

H-204145

A COGENERATION SYSTEM FOR FUEL CELL VEHICLE

ABSTRACT OF THE DISCLOSURE

A fuel cell system and process using an organic Rankine cycle to produce shaft work to operate a fuel cell system component such as an air compressor. The air compressor delivers compressed air to a fuel cell stack.

5 The steps of the Rankine cycle include pumping a liquid working fluid to an elevated pressure, heating the fluid to a gas, expanding the high temperature and high-pressure gas through an expander to produce shaft work used to drive a fuel cell system component such as an air compressor, and then removing energy from the cooling fluid to change the gas back to a liquid, and

10 repeating the cycle. The liquid fluid can be heated by an external boiler, or one of the components of the fuel cell system such as the combustor and/or the fuel cell stack.

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